

A PRELIMINARY OBSERVATION ON THE GUT CONTENTS OF  
*NEANURA MUSCORUM* (TEMPLETON) (COLLEMBOLA,  
NEANURIDAE)

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Macnamara (1924) was the first to make significant observations on the food of Collembola. He suggested that Collembola with a many-ridged molar plate on their mandibles are vegetarian chewing forms, while those without a molar plate are carnivorous suctorial forms. Most publications on the food of Collembola are restricted to chewing forms, though a few workers (Imms, 1906; Macnamara, 1924; Womersley, 1932) have casually referred to the food and feeding habits of suctorial species. The present work is an attempt to examine in detail the food of *Neanura muscorum* (Templeton), a suctorial species, commonly found in the humus layer of the coniferous forest soil or decaying wood in old deciduous woodland, at Aberystwyth, Cardiganshire.

MATERIALS AND METHODS

*N. muscorum* is a medium sized collembolan (2.5 mm long), dark blue in colour. The mouthparts are greatly modified, the mandibles are without the molar plates and are modified to form stylets. The insect is sluggish and has no spring. Several methods were employed to examine the gut contents namely, squashes in lactic acid stained with cotton blue (Aniline blue W.S.) in lactic acid, paraffin wax sections, smears, and cultures to determine the micro-organisms present. The specimens were collected from their habitat and immediately killed and fixed in the field to avoid further digestion of the food. The fixed specimens were cleared in lactic acid or lacto-phenol. The clearly visible gut was then dissected out on the slide for microscopic examination. Sabouraud agar for fungi and blood agar for bacteria were used as culture media. The external body surface of the insect was sterilised using dilute mercuric chloride solution (see also Wilson & Miles, 1948; Steinhaus, 1946). The gut contents were transferred to the culture media and streaked using a platinum wire loop.

RESULTS

The gut contents were of a fluid nature. The bulk of them were formed of fine debris resembling suspended colloidal particles; the remaining materials consisted mainly of fungi in the form of very small hyaline spores and hyphae and yeast-like colonies. Decayed plant tissues were recognised as fine cellulose materials, light brown or yellowish in colour. A few mineral and amorphous organic particles were also present. In addition to these a small number of protozoan cysts were also present. Individuals collected from coniferous leaf litter showed a larger percentage of humus particles than those collected from decaying logs in deciduous woodland.

Examination of longitudinal and transverse sections of the gut agreed with the findings from lactic acid preparations. Fluid contents which could not be seen in lactic acid preparations were observed in sections of the gut containing mainly fluid food with large numbers of fine particles in suspension. The fluid towards the posterior end of the

necrophagous. The findings here do not substantiate the generalised view of Macnamara (1924).

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